Nuclear Emergency Preparedness and Response in Canada

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Canada - Overview

- Second largest country in the world at 10 million km²
- Total population: 36 million
- Indigenous population of 1.7 million (4.9%)
- Foreign born population of 7.5 million (22%)
- Two official languages:
  - French as mother tongue (22%);
  - English as mother tongue (58%)
- Over 60 Indigenous languages
Canada’s Constitution Act

• Canada:
  – Constitutional monarchy in which the power to govern is vested in the Crown but is entrusted to the government to exercise on behalf and in the interest of the people
  – Federation of 10 provinces and 3 territories

• Constitution Act sets out fundamental principles and the division of powers between the federal government and provincial and territorial governments
  – Federal government deals with areas of law that affect the whole country, such as national defence, foreign affairs, Aboriginal lands and rights
  – Provinces and territories make laws about matters within their own borders
  – Aboriginal governments have authorities similar to municipal governments
  – In some areas, governments share responsibility
    • e.g., health, agriculture, immigration, emergency management
Roles & Responsibilities for Emergency Preparedness and Response

- A shared responsibility relying on ongoing cooperation between federal, provincial and territorial governments and their partners, utilising a bottom-up, all-hazards approach:
  - Local authorities and provincial & territorial (P/T) governments provide the first response to the vast majority of emergencies
  - If an emergency threatens to overwhelm the resources of a P/T, the federal government may intervene at the request of the P/T (federal Emergency Management Act)

- National Emergency Response System
  - harmonizes joint federal, provincial and territorial response to emergencies
  - facilitates procurement and logistics coordination between all levels of government, the private sector, non-governmental organizations and international stakeholders.
Nuclear Emergency Preparedness and Response: Operating Nuclear Power Plants & Naval Ports
Roles & Responsibilities for Nuclear Emergency Preparedness and Response

- Nuclear safety in Canada is established and maintained through mature regulatory and emergency preparedness regimes, fully aligned with international requirements established by the International Atomic Energy Agency (IAEA) and associated international conventions.

- As with other emergencies, nuclear emergency preparedness and response is a shared responsibility between the three levels of government (municipal, provincial/territorial, and federal government); licensees; and non-governmental organizations in a bottom-up approach.
  - However, in the case of a nuclear emergency, provinces assume control from the beginning, and are the primary authority having jurisdiction for the response.
  - The federal government becomes involved if requested to provide support or deal with areas of federal authority.
Roles & Responsibilities – cont’d

Federal Authorities
FERP Departments
FNEP Partners

International:
Other countries
IAEA, WHO

Licensee
CNSC
HC
OGDs
PS
Coordinates federal response

Municipalities, Province
Bordering Provinces, States
Roles & Responsibilities – cont’d

• **Licensees**: responsible to mitigate and control the emergency on-site and to provide information and support to off-site authorities and the nuclear regulator.

• **Municipal level**: responsible for the immediate response and management of the public health consequences as mandated by provincial authorities.

• **Provincial/territorial level**: **Primary off-site authority having jurisdiction for the response** and responsible for:
  
  – Overseeing public health and safety, protection of property and the environment within their jurisdiction.
  
  – Managing the response and coordinating the efforts of responding organizations (public safety, environment, health, labour, etc).
  
  – In the case of nuclear power plants, coordinating support from the licensee and the Government of Canada during preparedness activities and emergency response.
Roles & Responsibilities – cont’d

- **Federal level**: Becomes involved in areas where it has primary jurisdiction, when requested by a province or territory to provide support, if the event is cross-jurisdictional, or occurs outside of Canada but with potential impacts on Canadians:
  - Provides regulatory oversight of the licensee response
  - Provides technical support as per pre-agreement, or on request
  - Liaises with the international community, and diplomatic missions
  - Coordinates the national response to a nuclear emergency occurring in a foreign country, and assists Canadians abroad
  - Focal points for coordination and communication with IAEA and WHO

- For events at any of the US power plants named in the Ontario Provincial Nuclear Emergency Response Plan (Transborder Implementing Plan), namely those in MI, NY and OH where Ontario falls within their Emergency Planning Zones, Ontario remains the authority having jurisdiction.
Regulatory and Licensee Level

Nuclear Safety and Control Act
• Subsection 24(4): The applicant will make adequate provision for the protection of the environment, the health and safety of persons ….

Class 1 Nuclear Facilities Regulations
• Section 6: An application for a licence to operate a Class I nuclear facility shall contain…
  (k): the proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of national security, including measures to:
  – assist off-site authorities in planning and preparing to limit the effects of accidental release;
  – notify off-site authorities of accidental release or the eminence of an accidental release;
  – report information to off-site authorities during and after an accidental release;
  – assist off-site authorities in dealing with the effects of an accidental release; and
  – test the implementation of the measures to prevent or mitigate the effects of an accidental release.
Licences

• The Licensee shall implement and maintain programs to ensure emergency preparedness including:
  – Basis for emergency planning;
  – Personnel selection and qualification;
  – Emergency preparedness and response organizations;
  – Staffing levels;
  – Emergency training, drills and exercises;
  – Emergency facilities and equipment;
  – Emergency procedures;
  – Assessment of emergency response capability;
  – Assessment of accidents;
  – Activation and termination of emergency responses;
  – Protection of facility personnel and equipment,
  – Interface with off-site organizations;
  – Recovery program;
  – Public information program; and
  – Public education program.

Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

Licence Conditions Handbook
(LCH-PR-15.01/2025-I002)
Effective Date: February 28, 2018

Darlington Nuclear Generating Station
Nuclear Power Reactor Operating Licence
PROL 13.01/2015, (Effective: October 26, 2017)

Signed at OTTAWA on the 21st Day of February 2018.

Gerry Frappier
Director General, Directorate of Nuclear Reactor Regulation
CANADIAN NUCLEAR SAFETY COMMISSION
Regulatory Documents and Guidance

Emergency Management and Fire Protection
Nuclear Emergency Preparedness and Response
REGDOC-2.10.1, Version 2

February 2016

IAEA Safety Standards
for protecting people and the environment

Preparedness and Response for a Nuclear or Radiological Emergency

General Safety Requirements
No. GSR Part 7

N1600-16
Provincial Level

- Provincial governments have primary responsibility for protection of life and property within their borders.
- Each province has emergency management legislation that articulates the responsibility for establishing plans and arrangements at the preparedness stage.
- The Province is responsible for managing the offsite consequences of the nuclear emergency by supporting and coordinating the offsite response, and for directing any offsite protective actions required.
- Provincial responsibilities are executed in concert with the efforts of organizations with nuclear emergency responsibilities as set out in the relevant provincial nuclear emergency plans:
  - Nova Scotia and British Columbia for nuclear power vessels
Provincial Level

- The provincial nuclear plans describes the general roles and responsibilities for the response to a nuclear emergency in the province.
  - In Ontario, they are applied through detailed implementing plans for each major nuclear facility and for all other types of radiological emergencies.
- All other major organizations involved (e.g., municipalities, NPPs, government organisations) develop their own plans consistent with the requirements of the provincial plans and their individual mandates.
- The provincial response to nuclear and radiological emergencies is coordinated through the Provincial emergency operations centre. These interface with the local and federal emergency operations centres.
Provincial Response Structures (IMS – ICS)
Federal Level: Federal Emergency Response Plan

The federal government’s all-hazards response plan

- Harmonizes federal emergency response efforts with those of provinces and territories, NGOs, and the private sector
- Allows for horizontal and vertical harmonization of effort throughout the federal government
- Provides an integrated, strategic-level Government of Canada response

When is it used?

- When a province or territory requests federal support
- When an emergency of such magnitude occurs that it impacts multiple jurisdictions and/or government departments; coordination is required
- When an event directly involves federal assets, services, employees, statutory authority/responsibilities, or impacts confidence in government
- When aspects of the national interest are affected
Emergency Support Functions (ESFs)

- ESFs describe the structure through which Government of Canada capabilities are managed to meet emergency management objectives.
- ESFs are functions frequently required during an event affecting the national interest.

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<th>MINISTER(S) WITH PRIMARY RESPONSIBILITY</th>
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<td>Transport Canada</td>
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<td>Telecommunications</td>
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FERP Governance Structure

CABINET COMMITTEE

DEPUTY MINISTERS COMMITTEE

FEDERAL COORDINATING OFFICER

ASSISTANT DEPUTY MINISTERS COMMITTEE

DIRECTORS GENERAL EVENT RESPONSE COMMITTEE

GOVERNMENT OPERATIONS CENTRE

NON-GOVERNMENTAL ORGANIZATIONS

INTERNATIONAL PARTNERS

FEDERAL GOVERNMENT INSTITUTIONS

PRIVATE SECTOR

REGIONAL FEDERAL COORDINATION GROUP (FCG)

PROVINCIAL EMERGENCY MANAGEMENT OFFICE (EMO)

(Subject Matter Experts and Technical Advisory Groups)
Federal Nuclear Emergency Plan (FNEP)

- An event-specific Annex to the Federal Emergency Response Plan (FERP), led by Health Canada
- Complements and integrates with the all-hazards governance established by the FERP.
- Describes how federal institutions mobilise and coordinate their scientific and technical capabilities to manage the radiological health consequences of a nuclear emergency
- Endorsed by the Deputy Minister’s Emergency Management Committee.
- Augments FERP with a Technical Assessment Group and Nuclear Emergency Functions assigned to primary and supporting federal departments and agencies
Five nuclear event categories classified according to potential impacts on Canada or Canadians and scale of federal response

- **Category A**: Emergency at a nuclear power plant in Canada (similar to EPC 1)
- **Category B**: Emergency at a nuclear power plant in the USA or Mexico
- **Category C**: Emergency involving a nuclear-powered vessel in Canadian waters
- **Category D**: Other serious radiological emergencies or threats in Canada
- **Category E**: R/N Emergency outside of North America
The FERP Emergency Support Functions apply in a nuclear emergency.

The FNEP identifies additional Nuclear Emergency Functions (NEF), which are activities required for managing the radiological consequences of nuclear emergencies within the all-hazards response.

- Assigned to primary and supporting federal institutions in line with mandates and capabilities that can support response to off-site radiological consequences within areas of federal jurisdiction and in support of P/Ts.

FNEP NEFS:

- Notification and monitoring (including international)
- Technical Liaison and coordination
- Assessment of radiological hazards and impacts
- Field operations
- Protective action recommendations
- Protection of emergency workers
- Medical response
- Informing the public
- Transition to recovery
- De-escalation
FERP and FNEP Response Governance

CABINET COMMITTEE

DEPUTY MINISTERS COMMITTEE

FEDERAL COORDINATING OFFICER

ASSISTANT DEPUTY MINISTERS COMMITTEE

DIRECTORS GENERAL EVENT RESPONSE COMMITTEE

GOVERNMENT OPERATIONS CENTRE

(Federal government institutions)

INTERNATIONAL PARTNERS

PRIVATE SECTOR

NON-GOVERNMENTAL ORGANIZATIONS

FEDERAL GOVERNMENT INSTITUTIONS

REGIONAL FEDERAL COORDINATION GROUP (FCG)

PROVINCIAL EMERGENCY MANAGEMENT OFFICE (EMO)

FNEP Technical Assessment Group

TAG Radiological Task Teams
FNEP Provincial Annexes

• The FNEP recognises the primary responsibility of provinces and territories for protecting public health, safety, property and environment within their borders.

• The FNEP contains Provincial Annexes for provinces that have Nuclear Power Plants or ports that berth Nuclear Powered Vessels:

• These Annexes describe the specific interfaces between the Federal, Federal-Regional and the Provincial governments, and the planning arrangements for providing coordinated federal support to the Province during a nuclear emergency.

• Intended as prior-agreements as defined under Section 6 of the Federal Emergency Management Act (2007).

Ontario  New Brunswick  Quebec  Nova Scotia  British Columbia
National Governance & Coordination

• Federal all-hazards governance is supported by emergency management coordinating committees at the Deputy Minister, Assistant Deputy Minister and Director General Level.

• FNEP governance is supported by two emergency management committees at the federal level and federal-provincial level.

• Key federal departments participate in the relevant provincial nuclear emergency management committees.

• The scope of these committees comprises the national coordinating mechanism for nuclear emergencies.
International Coordination

• Canada is a signatory to the two emergency conventions
  – Convention on Early Notification of a Nuclear Accident:
    • NCA(D): Canadian Nuclear Safety Commission, Health Canada
    • NCA(A): Health Canada
  – Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency
    • NCA: Health Canada
• International Radiation Monitoring Information System (IRMIS)
  – Data Provider: Health Canada
• Canada also has arrangements to report radiation emergencies under the International Health Regulations:
  – National Focal Point: Public Health Agency of Canada (PHAC)
  – Both Health Canada and PHAC are under the Minister of Health, which facilitates coordination between the two notification mechanisms
• Various Canada-US bilateral arrangements including:
  – HC-US DOE/NNSA
  – CNSC-US NRC
Training, Exercises and Capability Improvement

• All jurisdictions conduct training, drills and exercises to ensure plans and arrangements are fit for purpose.

• At the federal level, Public Safety Canada maintains a national exercise program and calendar.

• Health Canada, through its FNEP committees, maintains a nuclear emergency exercise calendar. This is provided as input into the National Exercise Calendar.

• To ensure sustainability and effectiveness, recently approved a long-term cycle for various radiological-nuclear exercises
  – FSX-Priority exercise every 7±1 years.
  – Augmented with smaller scale and more frequent exercises.

• Observations and lessons learned are captured in management response actions plans to ensure that recommendations are tracked and implemented.
External Reviews

• 2018: JEE
  – Following a commitment at the 2017 North America Leaders Summit, Canada underwent a Joint External Evaluation to gauge capability and capacity to address obligations under the International Health Regulations
    • Includes a module on Radiation Emergencies

• 2019: EPREV
  – Following a commitment at the 6th Review Meeting under the Convention on Nuclear Safety, Canada underwent a EPREV in June 2019
  – Report will be made public in Jan 2020 following its completion
  – Canada’s self-assessment is available to all member states through EPRIMS
THANK YOU

https://www.canada.ca/en/health-canada.html

https://twitter.com/GovCanHealth?lang=en

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